



Excess mortality during heat waves and cold spells in Moscow, Russia

Author(s): Revich B, Shaposhnikov D
Year: 2008
Journal: Occupational and Environmental Medicine. 65 (10): 691-696

Abstract:

OBJECTIVES: To estimate excess mortality during heat waves and cold spells, and to identify vulnerable population groups by age and cause of death. **METHODS:** Daily mortality in Moscow, Russia from all non-accidental, cardiovascular and respiratory causes between January 2000 and February 2006 was analysed. Mortality and displaced mortality during cold spells and heat waves were estimated using independent samples t tests. **RESULTS:** Cumulative excess non-accidental mortality during the 2001 heat wave was 33% (95% CI 20% to 46%), or approximately 1200 additional deaths, with short-term displaced mortality contributing about 10% of these. Mortality from coronary heart disease increased by 32% (95% CI 16% to 48%), cerebrovascular mortality by 51% (95% CI 29% to 73%) and respiratory mortality by 80% (95% CI 57% to 101%). In the 75+ age group, corresponding mortality increments were consistently higher except respiratory deaths. An estimated 560 extra deaths were observed during the three heat waves of 2002, when non-accidental mortality increased by 8.5%, 7.8% and 6.1%, respectively. About 40% of these deaths were brought forward by only a few days, bringing net mortality change down to 3.2% (95% CI 0.8% to 5.5%). The cumulative effects of the two cold spells in 2006 on mortality were significant only in the 75+ age group, for which average daily mortality from all non-accidental causes increased by 9.9% (95% CI 8.0% to 12%) and 8.9% (95% CI 6.7% to 11%), resulting in 370 extra deaths; there were also significant increases in coronary disease mortality and cerebrovascular mortality. **CONCLUSIONS:** This study confirms that daily mortality in Moscow increases during heat waves and cold spells. A considerable proportion of excess deaths during heat waves occur a short time earlier than they would otherwise have done. Harvesting, or short-term mortality displacement, may be less significant for longer periods of sustained heat stress.

Source: <http://dx.doi.org/10.1136/oem.2007.033944>

Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Climate Change and Human Health Literature Portal

Temperature: Extreme Cold, Extreme Heat

Geographic Feature: ☒

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Russia

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Injury

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

Elderly

Other Vulnerable Population: People with cardiac and vascular diseases

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content